



Human Rabies Biologicals Supplied by the Texas Department of State Health Services

2018 Annual Report

Texas Health and Safety Code §826.025 and Texas Administrative Code Chapter 97, Subchapter E allow the Texas Department of State Health Services (DSHS) to supply rabies biologicals (vaccine and immune globulin) for people who have been exposed to rabid, or potentially rabid, animals. In an effort to make the biologicals available to Texas residents throughout the state, DSHS Public Health Region (PHR) offices may store and distribute rabies biologicals and some PHR offices partner with local health departments to serve as depots for storing and distributing biologicals. Surveillance data, including the demographic information on who received the biologicals and the reasons the biologicals were distributed, are maintained by DSHS (mandated by §97.123, Texas Administrative Code, "Provision of Anti-Rabies Biologicals").

Some private sources- such as clinics, hospitals, pharmacies, and healthcare systems- directly provide rabies biologicals to patients. These sources do not supply surveillance information to DSHS and are not included in this summary.

Postexposure Rabies Prophylaxis

During 2018, rabies biologicals were distributed for postexposure prophylaxis (PEP) to 418 people, of whom 156 (37.3%) acquired the biologicals from DSHS PHR offices and 262 (62.7%) from depots. The reported total cost of the biologicals distributed from DSHS inventory was \$1,233,103 (\$849,096 for 1,208 vials [2 ml] of human rabies immune globulin [HRIG] and \$384,007 for 1,423 vials [1 ml] of vaccine). A full PEP series of biologicals (HRIG plus 4-5 doses of vaccine) was distributed to 225 people (53.8% of people receiving biologicals from DSHS inventory) at a total cost of \$1,023,560 and an average cost of \$4,549 per person (median: \$4,563; range: \$1,745-\$8,790).

Rabies biologicals were distributed to 416 (99.5%) Texas residents and 2 (0.5%) out-of-state residents (California and New Mexico). Distribution of postexposure biologicals based on the PHR of patient residence is summarized in Figure 1. Distribution of rabies biologicals by month is shown in Figure 2.

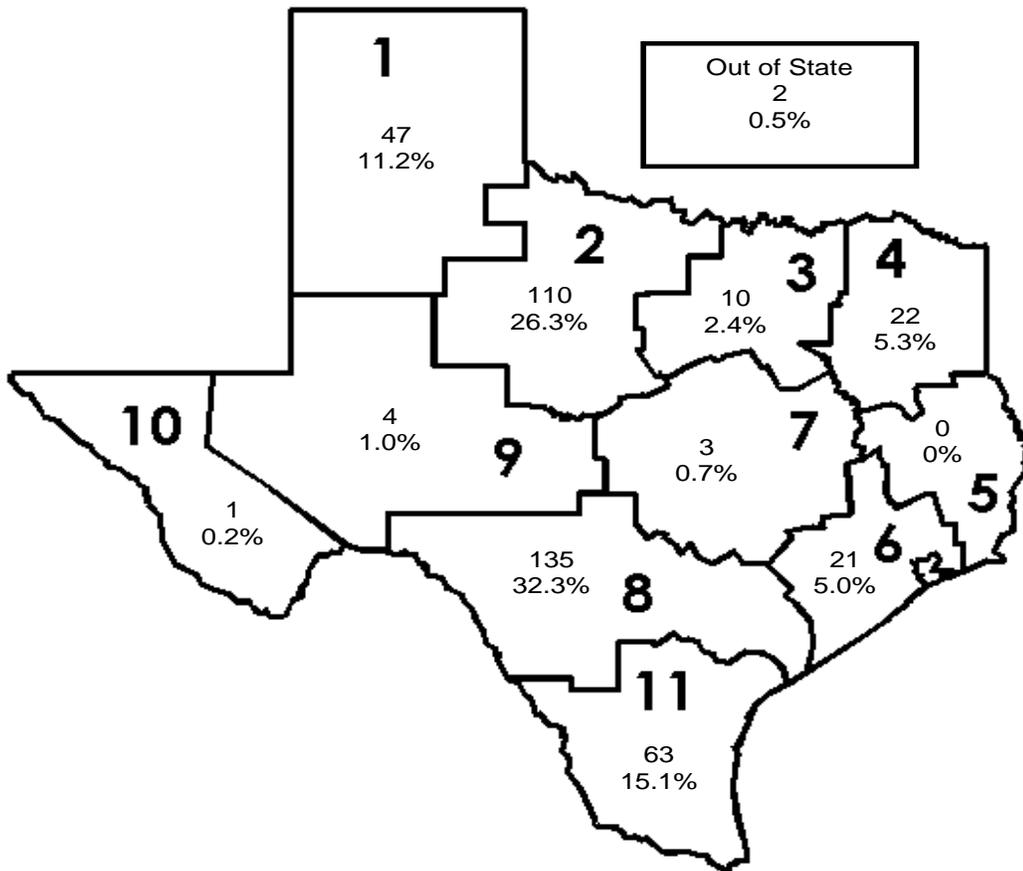


Figure 1. Number of People Receiving Rabies Biologicals by Public Health Region of Patient Residence, 2018

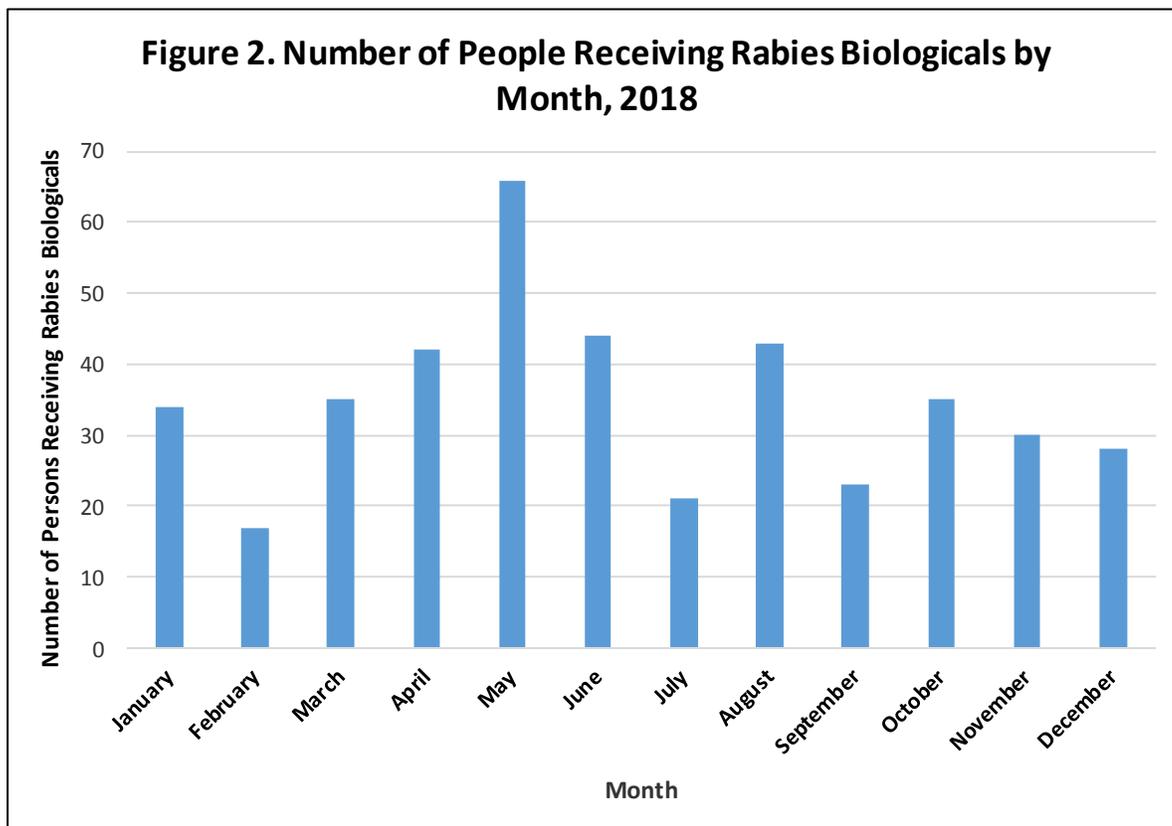


Table 1 lists the distribution of rabies biologicals by month and PHR of the patient's residence.

Month	Public Health Region										Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11			
January	2	6	3		3		15	1		4		34	8.1%
February		3		3			9			2		17	4.1%
March	4	3	2	3			11			12		35	8.4%
April	2	10		4	1		19			6		42	10.0%
May	10	28			1		18		1	7	1	66	15.8%
June	1	23		4	2		7	1		5	1	44	10.5%
July	2	6	1	1			8			3		21	5.0%
August	3	6		1	9	1	18			5		43	10.3%
September	7	4	1	2	3		3			3		23	5.5%
October	2	12	1		1		11	1		7		35	8.4%
November	10	5	1	1	1	2	5	1		4		30	7.2%
December	4	4	1	3			11			5		28	6.7%
Total	47	110	10	22	21	3	135	4	1	63	2	418	100.0%
%	11.2%	26.3%	2.4%	5.3%	5.0%	0.7%	32.3%	1.0%	0.2%	15.1%	0.5%	100.0%	

Table 1. Number of People Receiving Rabies Biologicals by Month and Public Health Region of Patient Residence, 2018

The number of people receiving rabies biologicals by distribution site are listed in Table 2.

DSHS-Supplied Rabies Biologicals Distribution Site	Number of Persons Receiving Rabies Biologicals
DSHS Public Health Region 1	50
DSHS Office - Amarillo	15
DSHS Office - Canyon	30
DSHS Office - Lubbock	5
DSHS Public Health Region 2/3	121
Abilene-Taylor County Health District	55
Brownwood-Brown County Health Department	36
Collin County Health Care Services	3
Denton County Public Health	2
DSHS Office - Arlington	1
Grayson County Health Department	1
Wichita Falls-Wichita County Public Health District	23
DSHS Public Health Region 4/5	24
DSHS Office - Mt. Pleasant	6
DSHS Office - Tyler	18
DSHS Public Health Region 6/5	16
Beaumont Public Health Department	4
DSHS Office - Houston	12
DSHS Public Health Region 7	0
DSHS Public Health Region 8	138
DSHS Office - Del Rio	5
DSHS Office - Eagle Pass	5
DSHS Office - Uvalde	22
San Antonio Metropolitan Health District	82
Victoria County Public Health Department	24
DSHS Public Health Region 9/10	4
DSHS Office - Alpine	1
DSHS Office - Brady	2
Ector County Health Department	1
DSHS Public Health Region 11	65
DSHS Office - Corpus Christi	25
DSHS Office - Harlingen	9
Hidalgo County Health and Human Services	25
Laredo Health Department	6
Statewide Total	418

Table 2. Number of People Receiving Rabies Biologicals by Distribution Site

Of the 417 animals for which species was reported, 124 (29.7%) were designated as being of high risk for transmitting rabies (bats, coyotes, foxes, raccoons, and skunks); 2 (0.5%) were classified as being of low risk for transmitting rabies (rodents, rabbits, moles, and opossums); and 291 (69.8%) were classified as neither high nor low risk for transmitting rabies (Figure 3). Although some species are considered low risk for rabies, all mammals are capable of becoming infected with and transmitting rabies. A risk assessment process, which includes many other factors besides species of exposing animal, is utilized to determine a general level of rabies transmission risk for a given exposure setting. In certain circumstances, post-exposure prophylaxis may be recommended even for exposures involving low-risk species.

The species of animals associated with the potential rabies exposures are detailed in Table 3.

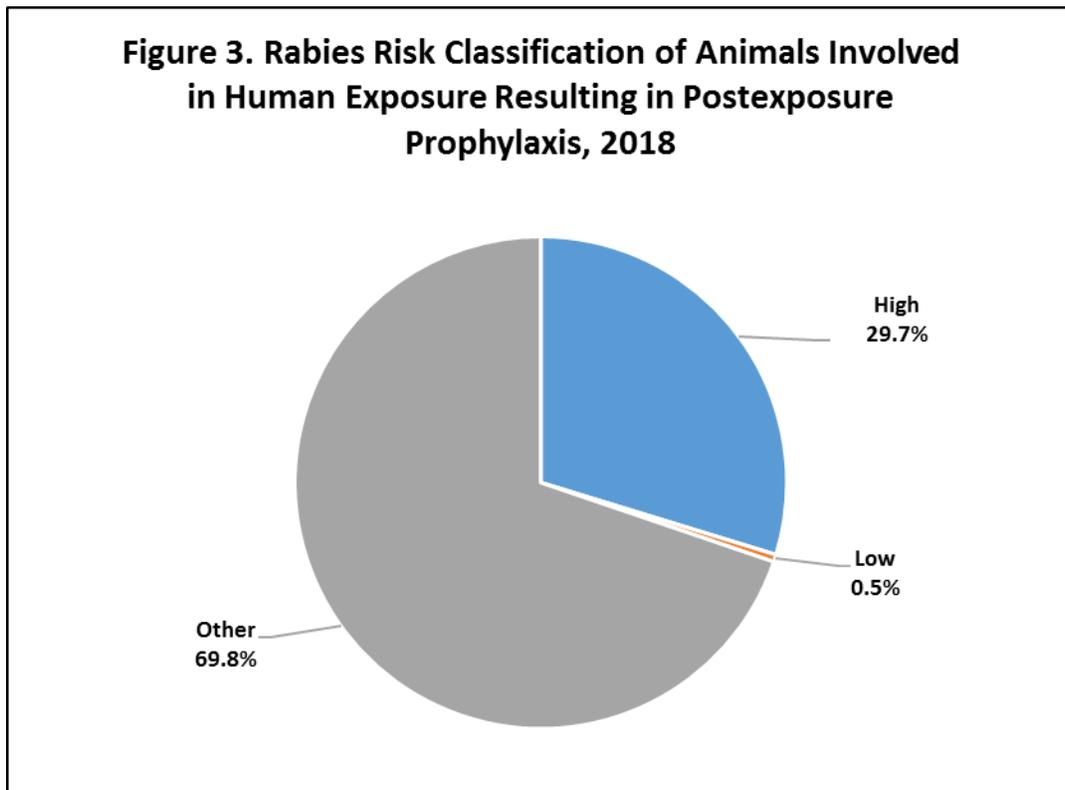
Species Associated with Exposure Resulting in PEP	Number	%
Dog	202	48.3%
Bat	88	21.1%
Cat	61	14.6%
Raccoon	22	5.3%
Fox	8	1.9%
Horse	8	1.9%
Cattle	5	1.2%
Sheep	5	1.2%
Primate	4	1.0%
Coyote	3	0.7%
Ferret	3	0.7%
Skunk	3	0.7%
Pig	2	0.5%
Unknown/Not Listed	1	0.2%
Camel	1	0.2%
Opossum	1	0.2%
Squirrel	1	0.2%
Total	418	100.0%

Table 3. Number of People Receiving Rabies Biologicals by Species of Exposing Animal, 2018

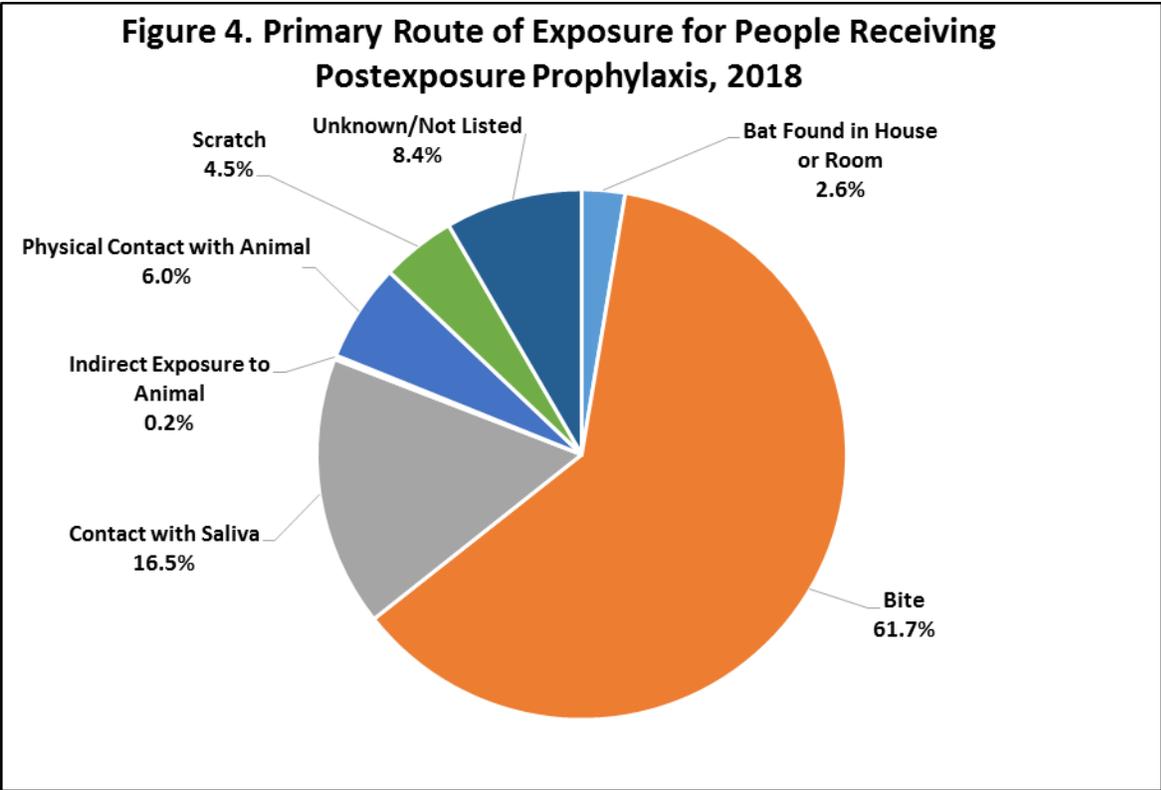
The number of people receiving biologicals by PHR and animal causing the potential rabies exposure is detailed in Table 4.

Exposing Animal	Public Health Region											Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11				
Bat	6	10	2	12	8		28	1		20	1	88	21.1%	
Camel							1					1	0.2%	
Cat	6	29	1	1	1	1	15	1		6		61	14.6%	
Cattle	1	2					2					5	1.2%	
Coyote	1						2					3	0.7%	
Dog	29	43	4	4	10	2	78	2		29	1	202	48.3%	
Ferret		3										3	0.7%	
Fox		8										8	1.9%	
Horse	2			1			1			4		8	1.9%	
Opossum	1											1	0.2%	
Pig		1	1									2	0.5%	
Primate		1								3		4	1.0%	
Raccoon	1	5	1	4	2		7		1	1		22	5.3%	
Sheep		5										5	1.2%	
Skunk		2	1									3	0.7%	
Squirrel		1										1	0.2%	
Unknown/Not Listed							1					1	0.2%	
Total	47	110	10	22	21	3	135	4	1	63	2	418	100.0%	
%	11.2%	26.3%	2.4%	5.3%	5.0%	0.7%	32.3%	1.0%	0.2%	15.1%	0.5%	100.0%		

Table 4. Number of People Receiving Rabies Biologicals by Species of Exposing Animal and Public Health Region of Patient Residence, 2018



Reported routes of exposure are shown in Figure 4.



Dogs and cats accounted for 263 (62.9%) of the reports of potential rabies exposures resulting in PEP. Of those, 43 (16.3%) were owned by the patient’s family, 53 (20.2%) were owned by someone other than the patient’s family, 159 (60.5%) were listed as either a stray or wild animal, and 8 (3.0%) had no ownership information identified (Figure 5). The vaccination status of 90 (34.2%) of the dogs and cats was reported as known, with 85 (94.4% of those with vaccination status known) being not currently vaccinated and 5 (5.6% of those with vaccination status known) being currently vaccinated. The vaccination status of 171 (65.0%) of the dogs and cats was reported as unknown and the vaccination status of 2 (0.8%) of the dogs and cats was not reported.

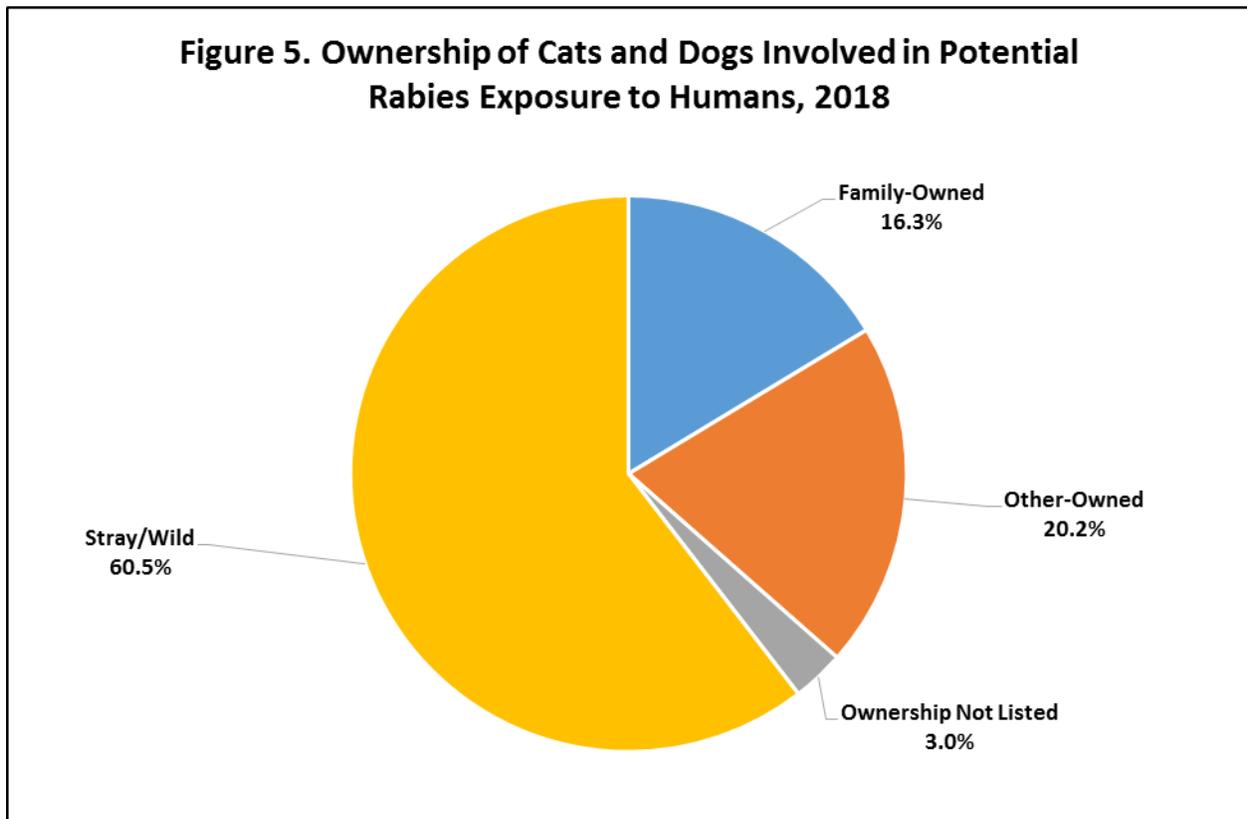
Anatomic Location of Exposure	Number of People	%
Hand	141	33.7%
Leg	75	17.9%
Multiple Anatomic Sites	65	15.6%
Unknown/Not Listed	51	12.2%
Head/Neck	32	7.7%
Arm	31	7.4%
Foot	15	3.6%
Torso	8	1.9%
Total	418	100.0%

Table 5. Primary Anatomic Location of Rabies Exposure for People Receiving Rabies Biologicals, 2018

The average age of those receiving PEP was 32.5 years (males 32.2 years, females 32.8 years). The median age of those receiving PEP was 30.0 years (males 30.5 years, females 29.0 years). Of the recipients, 206 (49.3%) were male and 212 (50.7%) were female. Of those people receiving PEP, 15 (3.6%) were

previously immunized for rabies, 9 (2.2%) were not previously immunized for rabies, and the rabies immunization status for 394 (94.3%) was not listed. The primary anatomic sites of exposure are listed in Table 5.

The animal causing the exposure was tested for rabies in a public health laboratory in 122 (29.2%) cases; the animal was not available for testing or quarantine in 272 (65.1%) cases; the testing status was not listed in 17 (4.1%) cases; and the animal was quarantined in 7 (1.7%) of cases. Rabies biologicals were distributed to 5 people (1.2%) while laboratory results were pending and 7 people (1.7%) while the animal causing the exposure was being quarantined for rabies observation. The final laboratory results for those samples which were pending at the time rabies biologicals were distributed were not recorded in the database (Table 6). PEP is occasionally begun while the exposing animal is being tested when the animal or exposure situation is deemed high risk. Additionally, sometimes the exposing animal is located for testing or quarantine after PEP has been initiated. PEP is generally discontinued if the laboratory result is negative or the animal successfully completes quarantine.



Laboratory Testing Status	Number	%	
Animal Quarantined*	7	1.7%	
Animal Not Available for Testing or Quarantine	272	65.1%	
Testing Status Not Listed	17	4.1%	
Tested	122	29.2%	
	Test Result	Number	% of Tested Specimens
	Positive	100	82.0%
	Sample Decomposed	5	4.1%
	Results pending at the time the PEP biologicals were distributed*	5	4.1%
	Result Inconclusive	5	4.1%
	Sample Destroyed	4	3.3%
	Test Result Not Listed	3	2.5%

Table 6. Rabies Testing Status and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2018

*PEP is occasionally begun while the exposing animal is being tested when the animal or exposure situation is deemed high risk. Additionally, sometimes the exposing animal is located for testing or quarantine after PEP has been initiated. PEP is generally discontinued if the laboratory result is negative or the animal successfully completes quarantine.

Table 7 lists the number of people receiving rabies biologicals for those instances in which the exposing animal was not available for testing or quarantine for rabies.

Exposing Animal	Public Health Region										Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11			
Bat	2	2	1	7	6		16			17	1	52	19.1%
Camel							1					1	0.4%
Cat	5	27	1		1		13	1		5		53	19.5%
Cattle							1					1	0.4%
Coyote							2					2	0.7%
Dog	13	23	3	1	6	1	57	1		27		132	48.5%
Ferret		3										3	1.1%
Opossum	1											1	0.4%
Pig		1										1	0.4%
Primate		1								3		4	1.5%
Raccoon	1	4	1	4	2		5		1	1		19	7.0%
Skunk			1									1	0.4%
Squirrel		1										1	0.4%
Unknown/Not Listed				1								1	0.4%
Total	22	62	7	13	15	1	95	2	1	53	1	272	100.0%
%	8.1%	22.8%	2.6%	4.8%	5.5%	0.4%	34.9%	0.7%	0.4%	19.5%	0.4%	100.0%	

Table 7. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Were Not Available for Testing or Quarantine for Rabies, 2018

Table 8 lists the number of people receiving rabies biologicals in those instances where the exposing animal tested non-negative for rabies.

Exposing Animal	Public Health Region									Out of State Resident	Total	%
	1	2	4	6	7	8	9	11				
Bat	4	8	4	2		8	1				27	23.9%
Cat		2	1		1						4	3.5%
Cattle	1										1	0.9%
Dog	16	19	3	4	1	12				1	56	49.6%
Fox		8									8	7.1%
Horse	2		1			1		4			8	7.1%
Raccoon		1				2					3	2.7%
Sheep		5									5	4.4%
Skunk		2									2	1.8%
Total	23	45	9	6	2	23	1	4	1	1	114	100.0%
%	20.4%	39.8%	7.9%	5.3%	1.8%	20.4%	0.9%	3.5%	0.9%	0.9%	100.0%	

Table 8. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Tested Non-negative for Rabies, 2018